2017 and 2018 NY fiber and grain hemp trials

A tale of two very different years

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2017 Trials

Locations:
We tested cultivars in small plot trials at five locations with diverse soil types on Cornell research farms around central NY. Planting dates ranged from June 9 – July 10.

Weather:
In 2017, temperatures were comparable to the 30-year average and rainfall amounts were above average in July with drier conditions during early fall grain production.

2018 Trials

Locations:
We tested cultivars in small plot trials at six locations on Cornell research farms from Riverhead to Chazy. Planting dates ranged from June 8 – June 20.

Weather:
In 2018, temperatures were warmer than the 30-year average, with dry conditions at planting and much wetter conditions during seed set and at harvest.

Weather data from the Northeast Regional Climate Center at Cornell University.
http://www.nrcc.cornell.edu/regional/tables/tables.html

2017 Ithaca fiber trial at time of harvest
Stand establishment:

Seedling Counts (seedlings per square foot)

<table>
<thead>
<tr>
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<th>2017</th>
<th>2018</th>
<th>Target stand</th>
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</thead>
<tbody>
<tr>
<td>Fiber trials</td>
<td>21.5</td>
<td>19.3</td>
<td>25-30</td>
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<tr>
<td>Grain Trials</td>
<td>10.5</td>
<td>8.8</td>
<td>10-15</td>
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In 2017, wet conditions delayed planting and seedlings were lost to *Pythium spp.* in some locations but, once established, seedlings grew consistently until flowering.

In 2018, conditions were very dry at planting and for weeks after planting. Those seedlings that survived, were stunted allowing for weeds to over run shorter cultivars.

Fiber Yields:

Because of seed shortages, in 2017 only one-four replicate trial was planted (in Ithaca, NY). Unretted biomass yields were 6.5 dry tons per acre in 2017 and 4.5 dry tons per acre in 2018.

In 2018, harvested fiber was also field retted, and this same Ithaca trial yielded 2.9 dry tons of retted fiber per acre. Our highest yielding location in 2018 yielded 5.8 dry tons of retted fiber per acre (Geneva-Research South).

Grain Yields:

Average grain yields in 2018 were about half those harvested in 2017 (552 lbs. per acre vs. 1026). The highest yielding cultivar in the highest yielding trial yielded 2341 lbs. per acre in 2017. In 2018, the highest yielding cultivar in the highest yielding trial yielded 1450 lbs. per acre.

Grain Quality:

In 2018, harvested grain had an oil, fiber, and protein content of 29.0%, 35.1%, and 28.0% respectively. In 2017, grain had an oil, fiber, and protein content of 35.7%, 33.4%, and 25.9%.

In 2017, all harvested grain was clean and intact with no visible disease. *Fusarium* was found on 0-9% of harvested grain and the highest detected levels of the mycotoxin *deoxynivalenol* (DON or vomitoxin) was 1.3 ppm. In 2018, many of the harvested seed lots were weathered in appearance, with cracked and discolored hulls. *Fusarium* was found on 0-68% of harvested grain and the highest detected level of DON was 36.6 ppm.